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1917

REQUIREMENTS
AND
SUGGESTIONS

RELATING TO HIGH SCHOOLS
OF WISCONSIN

To School Boards and Principals
of High Schools

C. P. CARY
State Superintendent
August, 1917

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INTRODUCTION

Inasmuch as the supply of the seventh edition of the High School Manual is exhausted this bulletin is issued in order to supply the information included in part one of the manual with some desirable additional matter.

Part Two of the Manual on subjects and methods is omitted except the topic of domestic science. A part of the subjects are now covered by bulletins issued either by this department or by the United States Bureau of Education. The following bulletins issued by the United States Bureau of Education, Washington, D. C., should be in the hands of every teacher of the indicated subjects:

No. 23, 1915—Community Civics.

No. 28, 1916—Social Studies, History and Economics.

No. 2, 1917—Reorganization of English in Secondary Schools.

Others are to be issued.

Bulletins issued by the State Department, Madison:

Manual of Agriculture.

Manual of Teachers' Training.

Manual Training soon to be issued.

QUALIFICATIONS OF TEACHERS IN FREE HIGH SCHOOLS

High-school teachers should not neglect or fail to obtain the necessary and proper legal qualifications. Without such qualifications, no valid contract can be made with the high school board, nor is the teacher entitled to pay from the public funds.

Any one of the following named documents is considered a sufficient legal and educational qualification for the position of principal or assistant in any high school:

1. The Wisconsin unlimited state certificate obtained through examination by the state board of examiners.
2. Graduates of the University of Wisconsin or of a Wisconsin State Normal School holding a license according to the statutes as follows:

“Section 39.25. (1.) The president of the University of Wisconsin shall issue to all graduates of the regular collegiate courses of such university, a certified statement showing the name of the graduate, the date of graduation, the course from which graduated, and that said graduate has completed the course of pedagogical instruction prescribed by the university for all persons who intend to teach. This certificate when presented to the state superintendent, shall entitle the holder thereof to receive a license qualifying the holder to teach in any public school in the state of Wisconsin for one year from the date of issuance. Upon presentation of satisfactory evidence of successful teaching for one year in the public schools of the state, such license may be renewed for one year by the state superintendent.

(2.) The president of each state normal school shall issue to the graduates of the full course of the normal school, as well as to the persons completing the elementary course,* a statement bearing even date with the diploma or certificate, setting forth the name of the person and the course from which graduated. This certificate when presented to the state superintendent, shall entitle the holder thereof to teach in the public schools of

* The elementary course has now been abolished.

Wisconsin for one year from date of issuance. Upon the presentation of satisfactory evidence of successful teaching for one year in the public schools of the state, such license may be renewed for one year by the state superintendent."

3. An unlimited state certificate issued by the state superintendent upon the presentation of either of the above statements with satisfactory evidence of good moral character, and a second year of successful teaching upon a renewed license after graduation, in the public schools of the state of Wisconsin.

4. Graduates of any college or university either in or outside of Wisconsin or a state normal school outside of Wisconsin whose courses of study are fully and fairly equivalent to the corresponding courses of the Wisconsin state university or the Wisconsin state normal schools may upon the recommendation of the state board of examiners be granted licenses and certificates by the state superintendent as in case of graduates of the Wisconsin state university and of the Wisconsin state normal schools. A fee of \$1.00 is required of such graduates for the first license and for a state certificate. No fee is required for the renewal of a license.

5. A special license good for one year, issued by the state superintendent upon recommendation of the state board of examiners and based upon an unlimited state certificate granted to the applicant by legal authority in another state. This may be renewed for one year upon recommendation by the state board of examiners, and after a second year of successful teaching in the public schools of Wisconsin upon such renewed license the state superintendent may upon the recommendation of the board issue an unlimited certificate.

6. A limited state certificate obtained through examination by the state board of examiners qualifies the holder to teach as an assistant in a free high school during the life of the certificate. It does not qualify as principal of a high school. Limited certificates of any kind from other states can not be given legal recognition.

7. In order that a school may receive special state aid for the work, teachers of manual training, domestic science, agriculture, and commercial subjects must hold a license or a certificate from the state superintendent authorizing the holder to teach the particular subject for which aid is to be received.

A license authorizing the holder to teach such special subject one year is granted, (a) to graduates of the particular course in the Wisconsin State University or of a Wisconsin state normal school; (b) to persons who give to the state board of examiners satisfactory evidence of preparation equivalent to such particular course. Such license is renewable for a second year, and upon satisfactory evidence of successful teaching a second year in the public schools of Wisconsin upon such renewed license a state certificate in the special subject may be issued, valid for life unless sooner revoked.

8. Special licenses covering either academic or vocational subjects limited in subjects, time, or place of teaching may be granted by the state superintendent upon the recommendation of the state board of examiners.

MANAGEMENT.

The high school board should coöperate with the teachers in all important matters and should at all times give them strong and consistent support while exercising authority with which they have been clothed.

Respect for authority should begin with those who are given authority, and should show itself in prompt and willing obedience on the part of teachers and principal to the expressed wishes of the board of education.

All reports required by the principal from teachers, by the board from the principal, and by the state superintendent, both from teachers and boards, should be carefully prepared and promptly rendered. To this end, school records, including final standings, should be posted to date, and books, apparatus and all school material should be frequently inventoried and at all times properly classified.

The principal is responsible to the local board and to the state superintendent:

- (a) For the character of the instruction given by himself and his assistants.
- (b) For the habits of study, character of recitation, and intellectual and moral progress of each pupil.
- (c) For the condition of the building, apparatus, library and closets, and
- (d) He is required to see to it that the courses of study adopted by the board and approved by the state superintendent are not changed by omissions, additions, or alterations without the written approval of the state superintendent.

The recitation program should be prepared in accordance with the

course of study; should be arranged primarily for the convenience of pupils rather than that of teachers; and should be posted in a conspicuous and permanent place.

COURSES OF STUDY.

The state superintendent is directed by law to prepare a course or courses of study suitable to be pursued in free high schools, publish the same and furnish the same upon application.

In compliance with this law, courses have been published and are recommended to the consideration of boards, as recited in form herein-after.

All courses adopted by boards must be approved by the state superintendent in order that the school may share in the apportionment of the state aid. Any changes in these courses after adoption and approval, without the consent of the state superintendent, will jeopardize the state aid. All negotiations for change should be perfected so as to inaugurate actual changes in the course on the opening of the fall term.

No foreign language should be required in schools offering only a single course; and in schools offering more than one course there should be one course without a foreign language requirement. This rule can be varied from only under most exceptional conditions.

For the four-years' English course there must be two teachers, the principal and one assistant at least. If in addition to the full work of an English course, two or more years of a foreign language are offered, the services of a second assistant are required. If more than six years of foreign language or other work are offered in addition to the work of the full English course, a third assistant must be procured.

When the enrollment in any high school offering a single four-year course reaches fifty the services of a second assistant will be required. When the enrollment reaches eighty a third assistant must be provided. In all schools having a principal and three or more assistants there must be at least one assistant for every thirty pupils enrolled.

The following rules outline the method of procedure of any free high school board when changes in the present courses are desired by them:

I. All proposed changes in courses of study should first be brought to the attention of the state superintendent. When approved by him, a copy of the course as adopted must be signed by the secretary of the board of education, and filed with the state superintendent.

II. New courses should go into force only at the beginning of a school year, and should be put into operation gradually, and in such manner as not to affect the plans of pupils who have already entered upon the work of a former course.

III. No courses will be approved where the teaching force is insufficient for their administration. An increase in the number of the

courses of study in the school or an increase in the number of electives where a single course is offered, must carry with it an increase in the teaching force.

General Requirements for all Courses

1. In order to receive approval, every four-year course of study must contain sixteen units of work, a unit meaning a daily recitation of at least 40 minutes for one year or its equivalent.
2. Included in these sixteen units must be two units of mathematics, two of English, two of history, and two of science.
3. While this is a general rule, it is not intended to be applied so arbitrarily as to prevent exceptions in cases of individual students for reasons satisfactory to the school authorities. Variations may also be advisable in the special vocational courses.

Special Suggestions

1. Mathematics may include bookkeeping as well as algebra, arithmetic, and geometry. A practicalized general form of mathematics is now being advocated in place of the usual year of algebra, and possibly covering the year now usually given to geometry. Some texts embodying this idea have already been published. This plan may be regarded as yet in an experimental stage, and it should be introduced only under strong teachers and good supervision.

In a few individual cases, algebra as a required subject has been cut down to half a year or even made elective altogether for students in vocational courses, such as agriculture and domestic science. The algebra given in the first year has generally been made too difficult for average students of this grade. The work should deal with simple processes and rudimentary principles with a large amount of vigorous drill to develop skill and mastery of these simple things. Some review of the subject should be provided in the junior or senior year for all students intending to continue the study of mathematics in higher schools. Such a review is considered far more desirable than an attempt to teach advanced algebra in the senior year.

2. Elementary science, if given for only half a year, should deal mainly with the physical sciences. If given for one or two years, it should include also some treatment of biological topics. In the agricultural course, at least a half year of general plant study or botany is required. The most desirable distribution of topics for two years of science work to be given in the first two years is as follows: Elementary science dealing mainly with the physical side, one half year; plant study, one half year; animal study, one half year; and physiology, one half year. It is not desired to make this division of time arbitrary, but the general order of treatment suggested is believed to have important advantages. There should be a more advanced treatment of the physical sciences in the junior and senior years. A year

of either physics or chemistry may be given or half a year of each may be provided.

3. A year of American history and civics should be taken by all students. The greater number of advantages are in favor of giving this in the senior year. If only two years of history are taken in the high school, the first year's study should be devoted to General European history. If three years can be given, the first two years should include a year on General History up to about 1500 A. D., and a year to the period since 1500 A. D. If desired to emphasize English History, an entire semester may be devoted exclusively to this.

Options

Subject to the advice and sanction of the state superintendent, and subject to the conditions herein contained, high schools have the following branches from which to choose in the construction of school courses.

1. Any foreign language.
2. Any one of the sciences.
3. History.
4. English.
5. Mathematics.
6. Civics, or citizenship.
7. Political economy, or economics.
8. Agricultural subjects.
9. Commercial subjects.
10. Subjects found in Manual Training, Domestic Science and Teachers' Training courses.

Maximum and Minimum Time Limits

1. No subject, as a general rule, should be offered for a less time than one-half year. Algebra and geometry should never be required for a period to exceed one year each.
2. Not less than two years of any foreign language should be offered.
3. The maximum time for history shall be three years, or four years including civics and economics.
4. Civics and economics not to exceed one-half year each.

GENERAL TYPE COURSE OF STUDY

The following general type course of study including manual training and domestic science presents a specific application of the preceding principles and is given as a suggestive basis for the formation of new courses. While it is desirable that there shall be a large degree of uniformity in the high school courses of the state yet reasonable variation will be approved and it is neither intended to arbitrarily fix the place of the different subjects in the course, nor to discourage the

adaptation of high school work to manifest local needs. Special courses in commercial work, agriculture, and teacher training are made by combining special subjects with the type course.

First Year

First Semester.

Required Units.

English.	English.
Mathematics.	Mathematics.

Elect Two Units.

Elementary Science.	Elementary Science.
Latin.	Latin.
Spelling, Penmanship, and use of Botany.	
Library.	
Manual Training or Domestic Science.	Manual Training or Domestic Science.
Elementary Zoology.	
Drawing.	Drawing.
Music.	Music.

Second Year

Required Units.

General History.	General History.
English:	English.

Elect Two Units.

Arithmetic.	Physiology.
Botany.	Latin.
Latin.	Bookkeeping.
Manual Training or Domestic Science.	Manual Training or Domestic Science.
Zoology.	Geography.
Drawing.	Drawing.
Music.	Music.

Third Year

Required Units.

Mathematics.	Mathematics.
English.	English.

Elect Two Units.

General History.	English History.
German.	German.
Latin.	Latin.
Bookkeeping.	Grammar.
Geography.	Economics.
Chemistry.	Chemistry.
	Citizenship.

Fourth Year*Required Units.*

Physics.	Physics.
American History and Civics.	American History and Civics.

Elect Two Units.

English.	English.
German.	German.
Latin.	Latin.
Advanced Algebra.	Solid Geometry.
Reviews.	Reviews.
Drawing.	Commercial Law and Business Practice.
Music.	Drawing.
	Music.

NOTE.—In courses offering less than four years of work in a foreign language, there must be at least three units of work in English; English grammar in the third year may count as one-half unit.

Not less than two years of any foreign language should be accepted.

Where the term "English" appears, work in the study of literary masterpieces, library work, composition, and applied grammar is implied.

Unless a sufficient number of students to form a class of fair size desire to take any given elective course, it should not be offered.

If physiology is not given a place in the course as a regular study, special lessons, perhaps as general exercises, should be given in physiology and hygiene with particular reference to the affects of stimulants and narcotics.

The following English course is suggested as a type course for the consideration of schools offering but one course.

ENGLISH COURSE.

First Year

First Semester.

English.	English.
Mathematics.	Mathematics.
Elementary Science.	Botany.
Elementary Zoology, or	Elementary Science or Domestic
Spelling, penmanship and use of Library.	Science.

Second Semester.

Second Year

English.	English.
Bookkeeping.	Arithmetic.
General History.	General History.
Botany or Zoology.	Physiology.

Third Year

English.	English.
Mathematics.	Mathematics.
General History.	English History.
Geography.	Citizenship.

Fourth Year

English.	English.
Physics.	Physics.
U. S. History and Civics.	U. S. History and Civics.
Reviews.	Reviews or Elective.

NOTE.—Reviews in the fourth year should include English grammar, arithmetic, algebra and geography. In schools having a number of pupils intending to attend higher institutions a part of the time may be given to a review of algebra.

Where the term "English" appears the work should include general composition with special attention to letter writing and business correspondence, expressive reading, study of literature and authors and such study as may be found necessary for the use of grammar in general work.

Careful attention should be given throughout the course to spelling, penmanship, and oral and written expression.

Electives in schools having but one course should be for the whole class only.

VOCATIONAL COURSES.

General Requirements for Manual Training, Domestic Science, Agriculture, and Commercial Subjects in Order to Secure Special State Aid for Work in These Courses.

1. The course of study in the high school must be equivalent to the course of study prescribed for free high schools.
2. The special course must be approved by the state superintendent.
3. The special department must be a part of the public school system; that is, it must be under the direction of the board of education.
4. The teacher of any of these special subjects must have a license covering the special work.
5. The scope and character of the work must be such as to meet the approval of the state superintendent.
6. The work must be maintained for a period of not less than six months during the school year for which aid is granted.
7. A report must be made by the clerk of each school board maintaining such department or departments to the state superintendent in such form as may be required, on or before July 1st of each year, setting forth facts as stated in the law.
8. All teachers of such special subjects must receive a salary of at least sixty dollars per month. Assistants to the regular teachers may, however, be employed at a salary of less than sixty dollars per month, but their salary can not be counted in apportioning the special state aid. This applies to grades as well as to high schools.
9. High school courses in manual training and domestic science must provide for at least two years of work in each of these subjects, and daily programs must provide an amount of time equivalent to at least 70 minutes daily for two years for each class.
10. After September 1, 1918, it will be a requirement of the state department that in order to receive aid for special departments of agriculture, the director of each such department must be employed for at least eleven months, including the months of June and July, for the purpose of providing adequate summer supervision of project work. It is a good plan to employ such director for the full year with the understanding that a month of vacation will be allowed at such time as may be agreed upon, not, however, including the months of June or July.

In order to receive special state aid for work in grades in these subjects, the law provides:

1. That the grades must be connected with a high school giving the special work and under the management of the same board.
2. That the work must be given in the two upper grades below the high school.

Note: Town and union high schools have no grades connected with them even though they may be in the same building. Aid, therefore, can not be granted to grades under such conditions.

3. That it shall be subject to the approval of the state superintendent.

4. At least 80 minutes weekly must be given to the work in the seventh and eighth grades. A longer time is strongly urged.

The amount of state aid for each of these departments is now one-half the cost of instruction in that department, limited to three hundred and fifty dollars when the instruction shall have been given in the high school and the two upper grades next below the high school, or two hundred and fifty dollars when given only in the high school except that in commercial courses the aid is limited to three hundred and fifty dollars in the high school with no additional for the grades below.

SUGGESTIVE COURSES IN AGRICULTURE

For general requirements see above and also Special Manual of Agriculture in the High Schools issued by this department.

Arrangement of Agricultural Subjects

First Year

First Semester.

Elementary Science.

Farm Carpentry, 2 periods a week.

Second Semester.

Farm Crops.

Farm Carpentry, 2 periods a week.

Second Year

Farm Crops.

Woodwork or Forge work, 2 periods a week.

Farm Animals.

Woodwork or Forge work, 2 periods a week.

Third Year

Farm Animals.

Mechanical Drawing, 2 periods a week.

Soils and Fertilizers.

Mechanical Drawing, 2 periods a week.

Fourth Year

Farm Mechanics.

Cement Work on the Farm.

Building Construction, 2 periods a week.

Farm Management.

Cement Work on the Farm.

Building Construction, 2 periods a week.

Four units of the above work are required. The two periods a week work, though not absolutely required, is regarded as exceedingly desirable and is strongly urged. It is expected that every high school giving the agriculture course will be supplied with at least two benches equipped with woodworking tools and it is strongly recommended that at least one forge be provided.

For fuller discussion of these courses see "Manual of Agriculture in the High School".

This will combine with an English course substantially as follows:

COMBINATION WITH THE ENGLISH COURSE

First Year

First Semester.

English.	English.
Mathematics.	Mathematics.
Elementary Science.	Botany or Elementary Science.
Zoology or Botany.	Farm Crops.
Farm Carpentry, 2 days a week.	Farm Carpentry, 2 days a week.

Second Semester.

Second Year

English.	English.
General History.	General History.
Bookkeeping (Farm Accounts).	Arithmetic.
Farm Crops.	Farm Animals.
Woodwork or Forge work, 2 days a week.	Woodwork or Forge work, 2 days a week.

Third Year

English.	English.
Mathematics or Business Practice.	Mathematics, Surveying or Chemistry.
Farm Animals.	Soils and Fertilizers.
Geography or Chemistry.	English History or Citizenship.
Mechanical drawing, 2 days a week.	Mechanical drawing, 2 days a week.
*Domestic Science (for girls).	*Domestic Science (for girls).

Fourth Year

American History & Civics.	American History & Civics.
Physics.	Physics.
Farm Mechanics.	Farm Management.
Reviews or English.	Reviews or English.
Cement Work, Farm Building Construction, 2 days a week.	Cement Work, Farm Building Construction, 2 days a week.
*Domestic Science.	*Domestic Science.

* Domestic Science has here been arranged to meet the needs of small schools which wish to allow the girls to take agriculture during the first two years. It is perfectly satisfactory to have the domestic science given the first two years provided some other course besides agriculture is supplied for the girls during the last two years.

COURSE WITH ONE UNIT OF AGRICULTURE.
FOR THE SMALL RURAL HIGH SCHOOL.

First Year

First Semester.

	<i>Second Semester.</i>
English.	English.
Mathematics.	Mathematics.
Elementary Science.	Botany.
Elementary Zoology.	Physiology.
Manual Training, 2 days per week.	Manual Training, 2 days per week.

Second Year

English.	English.
General History.	General History.
Bookkeeping.	Arithmetic.
Farm Crops and Scils.	Farm Animals.
Home Projects.	Home Projects.

Third Year

English.	English.
Mathematics or Business Practice.	Mathematics or Elective.
General History.	English History.
Geography or Chemistry.	Citizenship.

Fourth Year

English.	English.
U. S. History & Civics.	U. S. History & Civics.
Physics.	Physics.
Reviews or Economics.	Reviews.

COMMERCIAL COURSES.

No commercial course will be approved which does not include book-keeping, stenography and typewriting, and it is expected that one or more classes in each of these subjects will be in operation each year for which aid is granted.

The following is a suggestive combination of commercial subjects and an English course, which will satisfy the requirements of the law

for the receipt of special state aid, subject to the general requirements for all special courses.

First Year

First Semester.

	First Semester.	Second Semester.
English.	English.	
Mathematics.	Mathematics.	
Elementary Science.	Botany.	
Spelling, Penmanship, and use of Library.	Elementary Science or Domestic Science.	

Second Year

English.	English.
General History.	General History.
Botany.	Geography.
Commercial Arithmetic.	Bookkeeping.

Third Year

English.	English.
Bookkeeping.	English History.
Mathematics or Geography.	Mathematics or Citizenship.
Stenography and Typewriting.	Stenography and Typewriting.

Fourth Year

English.	Commercial Law, Business Practice.
Physics.	Physics.
U. S. History & Civics.	U. S. History & Civics.
Stenography and Typewriting.	Stenography and Typewriting.

TEACHERS' TRAINING COURSES

For detailed suggestions regarding Teachers' Training Courses in high schools, see a pamphlet recently issued by this Department, *The Training of Teachers for the Country Schools of Wisconsin*.

Summary of Chapter 555, Laws of 1913, Relating to a Training

Course for Teachers:

1. Any free high school or high school having a course of study equivalent to a free high school and having four or more teachers may establish a teachers' training course *except that*
2. Such schools *cannot* be established in counties already having county training schools for teachers.
3. The courses of study and the qualifications of teachers must be approved by the state department.

4. These courses must be administered for a period of not less than nine months during the school year ending June 30.

5. Any teacher employed to give instruction in the professional work and practice teaching shall be a graduate of the advanced course of a Wisconsin State Normal School, or a school offering a course of study equivalent to the course of study offered in the Wisconsin State Normal Schools, and shall, in addition, present evidence of at least two years of successful experience. The State Department very strongly recommends that at least five years of varied experience be required of teachers for training positions.

6. Such teacher must devote full time to the work of the training course. The training teacher is in no sense a grade supervisor, and none of her time should be devoted to grade supervision.

7. At least ten persons must elect to take such course during the current year. No Senior class should enroll more than twenty-five students. No Junior class should enroll more than twenty students. This gives an opportunity for five students who were not enrolled as Juniors to enter the class in the Senior year. In case it does not seem possible to live up to this requirement, there should first be correspondence with this office before more students are admitted. It may be necessary to modify these limitations when Chapter 269, Laws of 1917, goes into effect.

In case a high school wishes to admit more students to its training course, it will generally be necessary to secure help in the training department. In each case in which it is necessary to engage a second teacher, the approval of the State Department must be secured before such teacher is engaged.

8. The work shall meet the approval of the state superintendent and reports must be made to him.

9. The certificate of graduation qualifies the holder to teach and shall, upon evidence of successful teaching for at least seven school months, when countersigned by the county superintendent of the county in which the training school is located, legally qualify the holder to teach in that county for a period of five years from the date when such certificate was granted, and shall also be a legal qualification to teach in any department of any state graded school in that county, the principalship of a state graded school of the first class excepted. Standings on certificates of graduation from an approved training course may be accepted by any county or city superintendent in place of actual examination, under certain conditions.

10. If the administration of such training course meets the approval of the state superintendent, the state will aid to an amount equal to the sum expended for the salary of the duly qualified and approved teacher employed in this department. This special aid is apportioned as is other special state aid; that is, the teachers are paid by the district as other teachers are paid. The amount as above will be refunded at the time of the apportionment of special state aid.

As there are 27 training departments in the state and only \$25,000 to be expended for this purpose, no training teacher receives more than \$1000 from the state. In many places the local school boards add to the salary paid by the state in order to secure or keep very well qualified teachers.

11. A careful record of names, ages, and previous standings in scholarship should be made and kept of students electing this course.

After September 1, 1921, in order to secure a diploma from a Teacher's Training Course, a year of professional training will be required in addition to graduation from a four year high school course or its equivalent. In other words, it will require five years' work beyond the eighth grade to secure the teacher's certificate. See Chapter 269 Laws of 1917.

COURSE OF STUDY FOR TEACHERS' TRAINING DEPARTMENT.

The professional work consists of the following branches:

1. Junior professional reviews	1 unit
2. Senior professional reviews	1 unit
3. Senior pedagogy	$\frac{1}{2}$ unit
4. Practice work	$\frac{1}{2}$ unit
5. A miscellaneous unit (observation, school management, law, records, and rural economics)	1 unit
	Total
	4 units

It is these studies and no others which constitute the teachers' training course proper in Wisconsin high schools, and to these the state paid teacher must confine her work.

Until 1921 when the new law goes into effect, students graduating from high schools in the Teachers' Training Courses, must obtain twelve academic credits besides the four professional credits stated above. In selecting their academic branches, students should so select that they may obtain the following credits:

3 units (years) of English	$\frac{1}{2}$ unit of physiology and hygiene
$\frac{1}{2}$ unit of arithmetic	$\frac{1}{2}$ unit of English or European
$\frac{1}{2}$ unit of domestic science	History
$\frac{1}{2}$ unit of agriculture	$\frac{1}{2}$ unit of civics or citizenship
$\frac{1}{2}$ unit of geography	1 unit of United States History

Wherever possible it is to be hoped that students will get a whole unit of work in geography, arithmetic, English or European history, agriculture and domestic science, instead of one-half unit of each, as given above. The remaining academic studies are optional. See pages 10 and 11 of the pamphlet, *The Training of Teachers for the Country Schools of Wisconsin*.

WINTER TERM COURSE

This course is designed to provide opportunity for attending school during the winter months to those who for any reason are not able to attend the high school during the entire year.

Arrangements for this course will be made individually with eligible schools desiring to introduce it. For law see School Code, Section 494a.

MANUAL TRAINING.

For detailed suggestions in regard to manual training see bulletin soon to be issued by this department. A copy will be sent as soon as ready upon application to the State Superintendent, Madison, Wis.

DOMESTIC SCIENCE.

(For requirements for special state aid see pages 14-15)

It would be futile to attempt to plan a uniform course of study for the public schools of a state and require its adoption, because conditions and needs vary greatly in different cities. Some high schools enroll many pupils from the rural and parochial schools where domes-

tic science is not taught, and the work in these high schools must be more elementary in character than is the work offered in high schools where the pupils who enter have had from two to three years' work in sewing and cooking in the grades. Cities having a supervisor of domestic science and several assistants, can offer more diversified work than those cities where but one teacher is employed for all the work given in grades and high school.

Many high schools devote more than two years to work in domestic science. When this is possible and practicable, subjects can be offered that form but a part of the work in a two year course. For example, while the subjects of textiles, dietetics, household management, house decoration, and furnishing, are touched on in the two year course, not enough time can be given to them to give the pupils more than a superficial knowledge of the subject. In a two year course, time must be devoted to sewing and acquiring a knowledge of materials; to cooking and a study of foods, their nutritive value, and to the planning and serving of meals. The four year course rounds out the subject so that the girl not only knows how to make her clothes and cook her food, but how to conduct the business of managing a home. It is possible when advanced work is given in the junior and senior years to teach the pupils some trade, as dressmaking or millinery, which they may follow when they have finished school.

COURSES IN COOKING AND SEWING IN THE GRADES

Subject	School Year	Time per week
Sewing	5th and 6th grades	2 periods of 45 min.
Sewing, Adv.	7th grade	1 period of 90 min.
Cooking	7th grade	1 period of 90 min.
Cooking, Adv.	8th grade	2 periods of 90 min.

COURSES IN DOMESTIC SCIENCE AND ART IN HIGH SCHOOL

Subject	School Year	Time per week	Credit
Sewing and Textiles	Freshmen	3 periods of 90 min. 2 periods of 45 min.	One
Dressmaking, Millinery, Design, House Decoration	Sophomore or Junior	3 periods of 90 min. 2 periods of 45 min.	One
Food Study, Applied Theory and Science of Cooking Dietaries, including Feeding and Care of Infants	Sophomore or Junior	2 periods of 90 min. 3 periods of 45 min.	One
Hygiene and Sanitation and Household Management	Senior	2 periods of 90 min. 3 periods of 45 min.	One

To secure state aid for work in the grades and high school in domestic science, but few arbitrary requirements are made. These have already been stated in "Requirements for State Aid in Special Courses," but the time has come when a standard of work can be set and certain definite parts of the subject can be designated as essentials.

At least eighty minutes weekly must be given to the work in the seventh and eighth grades. Two eighty minute periods would secure better results.

In the domestic science work, both cooking and sewing should be given in the grades. Sewing may be offered in the seventh grade and cooking in the eighth, or cooking and sewing may be given on alternate days or alternate weeks in both grades.

Practical work, suited to home needs, should be given in the grades, as many girls leave school after completing the eighth grade. The work should be correlated with home work and credit might be given for duties and work performed at home, under the direction of the domestic science teacher.

Two years work must be offered in the high school for an amount of time equivalent to at least seventy minutes daily.

The courses offered in the high school must be fully and fairly equivalent in amount of work required and accomplished, to that done in other high school courses. This is necessary because the same amount of credit is offered for each course pursued in the high school.

Work in high school should not be merely a continuation of the practical work offered in the grades, but should consist of some study and recitation and experiment work to organize and test the knowledge of the pupils and to make the practical work of educational value. Illustrative experiments should be carefully made and results should be recorded in a notebook.

Equipment must be adequate enough so as to furnish satisfactory facilities for effective work.

Discipline must be maintained in all classes. No work worthy of high school credit can be done where pupils are inattentive and disorderly. Directions for work should be so clear and definite that each pupil may proceed to work without consulting her neighbor as to what is required of her.

Because of the nature of the work, discipline is somewhat harder to establish in sewing and cooking classes than in classes where there is less activity. When the domestic science teacher is young and inexperienced the principal of the school should give her special attention and guidance in this matter of discipline during the first few months of the work.

Teaching the various stitches, seams, and hems, and applying them to garments; patching, darning, buttonhole making, and the making of underwear and simple dresses; teaching pupils the different kinds of cotton, woolens, and linens in the market so that they may know how to select materials and the proper prices to pay for each; teaching how to mend and care for clothing,—these form the essentials for any course in sewing no matter how simple or how elaborate the course may be.

The work in cooking should include dishwashing, fire-making, care of kitchen, dining room; cooking of all simple foods used in the average home; planning, cooking, and serving meals and calculating cost; a study of the composition and nutritive value of the common foods and their place in the diet. This work should include some lessons on personal hygiene, sanitation, home nursing, and what to do in case of emergencies; also some simple lessons on general housekeeping, including furnishing, decoration, and care of the whole house.

Too many lessons are given in schools on isolated cooking recipes, many of them repetitions of previous lessons, and no effort is made to coördinate and show that all cooking depends on the knowledge of a few simple principles. When certain fundamentals are mastered, the pupil should be able to take any good book of recipes, follow directions, and secure excellent results. The cooking lessons should be planned so that the pupils are able to prepare a meal in a short time and have all the foods ready to serve at a stated period. The purpose of all cooking work in schools should be to prepare pupils to plan, to purchase, to cook, and to serve appetizing and nutritious meals at moderate cost.

School cooking is of little value unless what is learned at school is practiced at home. If cooking lessons are practical, and planned so that pupils may be able to prepare the breakfast or suppers at home,

and do some general house work, credit can be given for work done at home. In this way the school and home will be brought into closer contact and girls will be led to take pride in home duties and responsibilities.

After a lesson is given at school, each pupil should practice it at home. For this reason, in the grades and first year of the high school, recipes should not be attempted that are too expensive for the average girl in the class. If the method of making a simple cake is successfully taught, the pupil should be able to make more elaborate ones from recipes found in good cook books. Time should not be wasted in making a dozen or more varieties of cake, pie, or cookies when methods and principles can be taught in a few lessons.

Encourage pupils to try and test new recipes at home and to learn to know by looking at them whether they will turn out well. Have pupils calculate the cost of all recipes. Have them note from week to week the price of foods in the market, and learn when eggs, vegetables, and fruits are in season.

Call attention to the market reports in the daily newspapers.

The following outline is given for work in the grades and high school, but it is not intended as a course of study which teachers are obliged to follow. It suggests some things which should be included in all courses of study.

Sewing in the Seventh and Eighth Grades.

(It is never advisable to give pupils a series of models to be completed before work is begun on articles for use, or on garments. After certain principles are taught by the model method these principles should be applied on some useful article so that pupils may know the place and value of the work presented. The models should not be considered works of art, but merely a means to teach the various steps in sewing before attempting to apply them.)

1. Teach the various stitches in common use, using coarse needle and canvas. The model may be made into a needle book or pincushion. Apply stitches by making work bag.
2. Seams and hems. Apply on a fancy or work apron.
3. Darning. Apply on stockings.
4. Hemming of towels and table linen and sewing on tape. May teach hemstitching, embroidery, and cross stitch. Apply on towel or napkins.
5. Patching and three cornered or flannel darn. Apply on clothing.
6. Have pupils make a slip-over night dress, other underwear, and teach buttonhole making and sewing on bands.
7. Teach pupils how to select material for under clothing and make a simple study of the production, manufacture, and cost of cotton materials used.

Teach methods of shrinking and how to set color.

Collect all kinds of material used by the class, have pupils learn the names of the different kinds, how to distinguish them, their cost and uses.

Teach the use and care of the sewing machine. When pupils finish the eighth grade they should be able to do good hand and machine sewing. *All imperfect work should be ripped out and done over until good work results.*

Cooking in the Seventh and Eighth Grades.

General directions for work, dishwashing, firemaking, and care of oven; care of the kitchen utensils.

Simple classification of foods, and foods discussed and prepared in sequence or similar foods in groups.

Preparing of dried fruits and fruits in season. Canning lessons.

Preparing potatoes and similar roots and tubers.

Cooking of cereal breakfast foods.

Preparing eggs in season; or some creamed protein food, as dried beef, or codfish, and coffee, cereal coffee, and cocoa.

Preparing of griddle cakes, simple muffins, popovers and biscuits.

Laying the table, table manners, and care of dining room.

Planning breakfast composed of foods previously prepared.

Preparing and serving of this breakfast during the recitation period. Breakfast table to be set at pupil's own place in the kitchen.

Making simple cake, cookies, pie, and preparing cheaper cuts of meat, as meat loaf, hamburg steak, simmered steak, etc.

Bread making.

Talks on care of teeth, eyes, hair, nails, etc.

Bathing and care of body; also talks and lessons on care of bedroom. Encourage pupils to care for their own rooms.

Have pupils report each week on work done at home. This should include not only cooking, but care of pupil's own room, and observation of rules of hygiene previously learned, as brushing teeth, bathing, sleeping with window of bedroom open, and exercise taken.

HIGH SCHOOL DOMESTIC SCIENCE.

High School Work in Sewing.

Hand and machine sewing.

Making a complete suit of underwear, simple cotton dress, wool dress, and skirt.

Study of textile fibres so as to know source from which they are derived, characteristics, and common methods of adulteration.

Water and sun tests for durability of color.

Names of standard cotton, woolen and linen materials, and prices of each, and the various uses of each.

Examination of samples of each.

Talks on how to launder, shrink, press, and care for clothing.

Talks on suitability of materials and garments for school, home and social life.

Cultivation of good taste in selection and wearing of clothing.

Cooking, Food Study and Dietaries.

Teaching the principles and methods of cooking through a series of lessons.

Study of foods by groups, and the application of the principles of cooking to each.

Study of the composition, nutritive value, place in the diet, and methods of cooking and serving of the different foods.

Preparation of cereals, roots and tubers, green vegetables, legumes, and fruits, including canning, preserving and jelly making, and time and method of serving them.

Making of bread, quick breads, cakes, pies, cookies, desserts, etc.

Preparation of meats, fish, eggs, milk and its products, and time and method of serving.

Teaching the planning and serving of meals and calculating the cost.

Planning and serving meals for limited sums of money; planning balanced meals for the average person, for children, and sick.

Feeding and care of infants and study of the causes of the high rate of infant mortality.

Marketing,—purchasing foods in bulk or in quantity, or in season, to save money.

Methods of storing, packing and caring for foods purchased for winter use.

Knowledge of the various cuts of meats and the uses of each.

Study of local market and comparison of prices with those paid in cities.

The relation of food to health, and a review of digestion, absorption, assimilation, and excretion, to understand how the body is nourished, how it grows, and the importance of perfect elimination of waste matter.

Some consideration should be given to diseases caused by errors in diet.

Hygiene.

At least once a week for one term of one semester.

Pupils should be taught that the most important thing for them to know is how to acquire and maintain good health.

The following topics may be considered:

The importance of proper food, fresh air, work, exercise, rest, and care of the nervous system, if health is to be maintained. Care of the body, especially the importance of bathing.

Contagious and infectious diseases, their cause and prevention.

Emergencies and home nursing.

The fresh air cure for diseases of the lungs, nervous system, and its benefit to all people.

Home Management.

At least once a week for one term or one semester.

The object of this work is to teach pupils to become familiar with some of the work and duties devolving on the average home-maker and to interest them in home-making.

Plans should be made for a simple house and the questions of heating, lighting, plumbing, decoration, and furnishing should be considered from the standpoint of the average family.

Stores may be visited and study may be made of suitable and artistic wall coverings, floor coverings, curtain materials, furniture, and labor saving devices for work.

The general plan of housework should be considered, including daily work, special work, cleaning, and care of the home.

Study should be made of the income and expenditures of families and the proper division of the income should be discussed.

This course may be made the most interesting and profitable of all courses in domestic science.

Domestic Science Equipment.

The sewing room should be equipped with at least one sewing table for every four pupils, a comfortable chair for each pupil, a sewing machine for every four pupils.

The kitchen should be equipped with tables containing drawers to hold utensils needed for individual work, a supply table, a coal or wood range, individual gas burners on the cooking tables or a two burner oil stove for every four pupils, a sink containing hot and cold water faucets. Hot water may be provided by placing a water front in the range or by running pipes through the furnace and connecting them with a storage tank. Sufficient cooking utensils should be provided.

Equipment for Sixteen Pupils.

Room equipment prices vary greatly according to style and local prices. Many of the pieces bought were obtained by personally selecting from the ten cent store.

The prices quoted were paid within the last few years. This is quite a complete list and no doubt several pieces could be omitted for the first year.

8 double or 16 single kitchen work desks—hard maple top with sliding moulding board	\$50 00 to \$100 00
8 to 16 individual gas stoves or oil stoves.....	\$1 25 up
1 Large gas stove or wood or coal range @.....	10 00 up

1 Ice chest	
1 Sink	
16 Stools or chairs	50 up
Zinc under individual stoves	
1 Supply table @	1 50 up
16 Knives (kitchen) @ \$.10	1 60
16 Forks (kitchen) @ .10	1 60
20 Tablespoons @ .05	1 00
32 Teaspoons, 2 for .05	80
16 Wooden mixing spoons @ .05	80
16 Wire egg-beaters @ .05	80
16 Dover egg-beaters @ .10	1 60
16 Spatulas @ .20	3 20
8 Pepper shakers @ .05	40
8 Salt-shakers @ .05	40
16 Paring Knives @ .15	2 40
16 Measuring cups @ .05	80
20 Mixing bowls @ .10	2 00
16 Utensil trays @ .10	\$1 60
16 Small pans @ .10	1 60
16 Pop-over cups @ .05	80
16 Frying-pans, small @ .10	1 60
16 Small sauce pans with cover, @ .15	2 40
16 Larger sauce pans with cover @ .20	3 20
16 Match safes	
16 Bread pans, small @ .10	1 60
8 Wire strainers @ .05	40
10 Water pitchers @ .10	1 00
8 Scrubbing brushes @ .05	40
8 Biscuit cutters @ .05	40
8 Doughnut cutters @ .05	40
8 Dishpans @ .25	2 00
8 Rinsing pans @ .15	1 20
8 Rolling pins @ .10	80
8 Double boilers, 1 qt. @ .50	4 00
4 Graters @ .05	20
4 Potato mashers @ .05	20
4 Skimmers @ .05	20
4 Muffin pans @ .10	40
2 Butcher knives @ .50	1 00
2 Griddle cake turners @ .05	10
2 Lemon squeezers @ .05	10
2 Large kettles, 2 to 4 qt. @ .75	1 50
2 Cake tins @ .10	20
2 Trays @ .10	20
1 Griddle	75
1 Colander	20
1 Iron kettle	1 50

1 Coffeepot	25
1 Meat grinder	1 00
1 Bread box	2 00
1 Flour can	1 00
1 Sugar can	75
1 Can opener	10
1 Corkscrew	05
1 Flour sifter	10
1 Large wire strainer	25
1 Teakettle	1 25
1 Spring balance	1 25
1 Sink strainer	10
1 Soap dish	10

Cleansing Equipment

1 Broom	\$ 50
1 Scrubbing brush	30
1 Dustpan	10
1 Mop	10
1 pail	25
1 Garbage pail	65
1 Washdish	25
1 Small scrubbing board	10
1 Bolt linen toweling, approximately	4 00

China Serving Dishes

1 Doz. large plates @ 10c each	\$1 20
1 Doz. smaller plates @ 10c each	1 20
1 Doz. cups and saucers @ 10c each	1 20
1/2 Doz. water glasses @ 5c each	30

or one complete set of dishes.

Sewing Equipment

2 Sewing machines @ \$25 each	\$50 00
8 Work tables @ \$1.00	8 00
1 Set flatirons	1 50
1 Ironing board	50
1 Yard padding for board	30

16 Chairs @ \$1.00 up

16 00

If not furnished by the pupils, scissors, thread, tape measure, pins, needles, etc., must be supplied.

Total Cost of Equipment

Cooking, about	\$250 00
Sewing, about	100 00

"Equipment for Teaching Domestic Science," by Helen Kinne (Whitcomb & Barrows, Boston) is a helpful book for the reference library in giving suggestions for planning and equipping the domestic science department.

THE JUNIOR HIGH SCHOOL.

In making definite plans for the future of any system of schools account should be taken of certain ideas which are becoming very pronounced in regard to plans of organization and administration of both high schools and of grades below.

The belief is becoming very prevalent that the present custom of making the division between the grades and high school at the end of the eighth year, leaving the last four years for secondary school work, is not wise from either an educational or a physiological standpoint. There is general agreement that there is at present a great loss of time and waste of effort in the seventh and eighth grades, greater than any where else in the entire course of study, not only on account of poor methods of instruction but also especially through the use of unsuitable subject matter and an inefficient grouping of students with certain details of promotion and management which dull interest and hamper advancement.

The great work of the grades from the academic standpoint is to give thorough training in the common knowledge which is absolutely necessary for success in any of the great occupations by which people get a living. Without some ability to read, write, calculate, and express thought a person is so hampered as to be almost helpless in his business and social relations with others. This same training also forms an excellent basis for future work in school.

The amount of this absolutely necessary knowledge, however, is much less in some subjects than is generally supposed. The arithmetical calculations, for instance, required of most people are limited to the very simplest operations, only a very small part of the matter covered in the arithmetic used in the grades; the English composition for the majority is mainly confined to simple business forms and to letter writing; if a person can write legibly with a fair degree of rapidity little question is raised as to the artistic appearance of his penmanship; and so we might go through the entire list of the so-called fundamentals. Thorough mastery of the very simplest operations rather than a wide range of knowledge is what is demanded.

The opinion is becoming common that six years is ample time for the average child if well taught to acquire this absolutely necessary information and skill and that our practice of allowing eight years to do what might easily be done in six, for this is practically what our present course for the eight grades amounts to, is largely responsible for the poor work, lack of interest and falling off of students so common in the seventh and eighth grades. New material is needed, adapted not merely to meet the simple business demands, but such as will widen the interests and give a broader outlook on life with some knowledge of what people do for a living and of their social relationships and obligations.

The thought, too, seems to be rapidly crystallizing that the seventh, eighth and ninth grades form a more natural group in all their activities than we have under the present system of placing the ninth grade with the young men and women of the upper grades of the high school, and the seventh and eighth with the children of the lower grades. Following out this idea in an arrangement of the school system we should have six years of grade work proper, an intermediate or junior high school including what are now the seventh, eighth and ninth years of school, and a senior high school composed of the tenth, eleventh and twelfth years.

It should be understood that the real intermediate or junior high school whether composed of two or three grades is an organization distinct from the grades below and the senior high school above, having its own building or distinct part of building, its own principal independent of the senior high school principal, its own peculiar program and course of study, and most of all its own peculiar objects to be attained, these last differing to a very considerable extent from those of either the school above or below.

Among others there are two very pronounced weaknesses common in school work as it is now administered. It is usually safe to say of any class under the traditional type of organization that from a third to a half of the members might do approximately double the work and be better for it; that as it is they are being trained to dawdle rather than to exert themselves in a vigorous, effective manner. At the same time it is likely that there are some who are being dragged along over work too difficult for them in the vain effort to equalize so as to fit the whole. That is, the work is not adapted to the capacities and aptitudes of the students as it should be.

Another serious fault is that students are passed through the school and turned out without any definite ideas of the great lines of work which people follow for a living upon which to base a judgment as to their own fitness or liking for any particular occupation.

It is believed that the 6-3-3 type of organization would lend itself much more readily to meeting these defects especially in the 7th and 8th grades than is possible under the present system with its subjects and methods so bound and hampered by tradition that it is almost impossible to bring about a real change.

This new organization is as yet free to act in almost any direction. It is not yet out of the experimental stage. In large schools it should be very easy to gather together many groups of like abilities and inclinations and give work accordingly. A comparatively few groups so formed, even as few as three, in any given subject would so nearly meet individual aptitudes that there should be a great improvement over what is possible in indiscriminate sectioning. At the same time promotion should be by single subjects or groups of related subjects, instead of by grades as now, so that when a student has completed a required amount in arithmetic or any other study he may take other work without being held back through not having completed the other

subjects of his grade. In the present graded system this is difficult to do because it usually implies a change of rooms and a serious interference with programs. Through such grouping and promotion it would be a comparatively simple matter to either allow the naturally stronger in any particular subject to finish sooner or to take a wider or more difficult range of work while weaker ones were taking the necessary minimum, or another study might be entered upon earlier. Students strong in grammar and weak in history would be in the corresponding strong or weak sections.

The second great weakness mentioned, that of lack of vocational instruction, should be dealt with to an extent, at least, in the same manner except that there should be a still greater measure of individualization. After a boy has made a fair effort in working with tools and has demonstrated to his own and his teacher's satisfaction that his tastes lie in other directions he should be allowed to try something else as commercial work or agriculture. It may finally develop that he should prepare along academic or professional rather than industrial lines. In short the junior high school form of organization as outlined above would seem peculiarly well-adapted to (a) give a good academic preparation for either continued study or for meeting the more common business, social and civic demands of life; (b) to give sufficient practice in a few of the great classes of occupations by which people live to form a basis of judgment as to what will be worth while to either try as a trade or to specialize toward in the senior high school; (c) to give such a knowledge of many special occupations, the nature of the work, wages, cost of preparation for, opportunities they offer for the exercise of true citizenship, etc., that a choice may not be made blindly or through a mere haphazard fancy.

To secure these results, however, will require much more attention to industrial work than is now given; probably from one-fourth to one-third of the school time will be none too much even though there were considerable correlation with academic subjects additional. It will also require more rooms and better industrial equipment than is now generally allowed for such grade work. The expense will probably be considerably increased unless the junior and the senior schools are so located and their enrollments are such that equipment can be used in common.

Different plans in regard to buildings for junior and senior high schools, dependent largely upon local conditions, are being worked out in localities both in our own and other states. One now in use at Menominee, Michigan, places separate buildings near enough together to permit of use by either school of an assembly room, gymnasium, laboratories and shops. A second, proposed at Waukesha, is a single large building for the two schools with shops, assembly room, and gymnasium which may be used in common or separately. A third plan is that for the two junior high schools of Kenosha in which each school is in a large building with the lower grades, while the senior high school is at considerable distance. Still a fourth, probably the

advisable provision where schools are large, is a distinct building fully equipped for the junior high school alone. This is the plan favored in the larger cities of California.

A real junior high school, then, means much more than mere departmental instruction in the usual courses of study or the incorporation of the 7th or 8th grades with the high school.

The junior high school should provide especially as follows:

1. For the grouping of students of like abilities and inclinations, and for ready transference from group to group or from subject to subject as reasons for such become evident. Especial opportunity should be afforded for "try-outs" in industrial and probably some academic lines of work.

2. A system of credits such that exceptional ability in some lines should to some extent offset weakness in some others.

3. A definite course of instruction in many of the great life occupations to help students to, in a measure, "find themselves" so that they may better either know what to do if they leave school or select a part of their work in the senior high school with a view to preparing for some definite trade or occupation.

4. Definite opportunity for creating a general school spirit to modify the strong class or grade distinctions existing in the present system. General exercises without regard to classes, grades, or departments; assignment of subjects to deserving students with regard to grades or years; flexibility of promotion from grade to grade; coöperation of the teachers are among the means which may be used for this purpose.

In addition to the above the junior high school should make provision for pupils of the fifth and sixth grades who on account of absence from school, repeated failures or other causes have grown so old as to make their enrollment with younger children undesirable. In many cases it will be found that such students will fit in with some of the regular classes. If necessary, however, special groups should be formed to meet the needs of such retarded boys and girls. Most communities will probably be willing to bear the comparatively small additional expense if they are made to understand what it is for.

It will probably not be feasible for schools to fully meet these conditions at once but they should be kept constantly in mind as ends to reach, and year by year there should be a gain in meeting the needs of individual students in the directions indicated.

The following from the announcements of the junior high school of Kansas City, Missouri, for the year 1916-17 will illustrate what is meant by some of the above purposes and what is being attempted by the foremost junior high schools.

COURSE OF STUDY

Six courses of study are offered: English, English-German, English-Latin, Industrial and Household Economics and the Business Course. The Composite arrangement of courses by years is as follows:

FIRST YEAR	Pds	SECOND YEAR	Pds	THIRD YEAR	Pds
English	5	English	5	English, English-German or	
English-German	5	English-Latin	5	English-Latin	5
Language		Language		Language	
Composition		Composition		Composition	
Spelling		Spelling		Spelling	
Reading		Reading		Reading	
Literature		Literature		Literature	
Social Studies	5	Social Studies	5	Business English	5
Arithmetic	5	Math. Arith., El. Algebra		Math. Arith., El. Algebra	
Geography	5	and Geometry	5	and Geometry	5
Shop Work	5 or 10	Shop Work	5 or 10	Shop Work	5 or 10
Dom. Art	5 or 10	Domestic Art	5	Domestic Art	5
Chorus	5	Domestic Science	5	Domestic Science	5
Orchestra	5	Chorus	5	Chorus	5
Typewriting	5	Orchestra	5	Orchestra	5
		Typewriting	5	Typewriting	5
		Mechanical Drawing	5	or	
		Physical Welfare:		Typ. 3, Shtd. 2	5
		Hygiene	2	Physical Welfare:	
		Gymnasium	3	Hygiene	2
				Gymnasium	3
				General Science	5
				Bookkeeping	5
				Mechanical Drawing	5

DISTINCTIVE FEATURES OF THE SCHOOL ORGANIZATION

The school day is divided into five periods of sixty minutes each, thirty minutes for recitation and thirty minutes for supervised study with a noon intermission of one hour.

Exploration of Subject Matter

Every pupil is required to carry five periods of work. No hard or fast rules are adhered to in the assignment of studies, excepting that all pupils are required to carry some form of language work, straight English, English-German, or English-Latin. Some pupils because of their previous record are allowed to omit from their original assignments certain traditional subjects. When, after a fair trial, it is found that a pupil shows no ability in the subject of study and that it is not likely to forward him in his probable destiny or career, he is given a more advantageous assignment. The assignment of many students is predominately of the motor type of work.

Homogeneous Grouping

In the academic studies all pupils showing about the same ability are grouped together. Under this system of organization, each year has five different moving groups, ranging from the accelerated to the

distinctly retarded. A special effort is being made to adapt the content and the range of the course to the group. Retarded pupils are given a chance to carry the work of the advanced grade in one of the slower moving groups. We have found this gives them a new lease on their school life and stirs them to greater effort. The physiological age is frequently the basis for this trial.

Grading System

Pupils of each group are ranked, not graded according to a standardized system of marking. The requirements for a passing rank or grade are determined by the ability of the group. This permits pupils to progress, who under the old type of school were doomed to inevitable failure. This system of grouping and ranking also stimulates each to his maximum effort and furnishes opportunity for leadership even in the retarded groups.

Special Courses

The students selecting the English-German or the English-Latin courses are not required to take a separate course in English; the work in the English being combined with the work in the Foreign language. The main purpose of these courses is to give the pupils a better working knowledge of the English language.

Home Room

The first hour teacher of each pupil is known as the parent-teacher. This parent-teacher acts as special sponsor and advisor to her group of pupils, exercising authority over their absence and conduct. In order to understand as fully as possible the environment of each, she makes personal visits to each home, meeting the parents and acquainting herself with home conditions. She endeavors during these interviews with the parents to learn of their ambitions for their children and of the aims of the child himself. By becoming thus acquainted with her pupils, the advisor is able to help them in their studies, influence their school habits, and advise them as to choice of work.

Physical Education

The first and second year students are required to spend three periods each week in the gymnasium and two periods in the classroom studying hygiene and sanitation. The gymnasium work is largely of the corrective type. All first year students are given light gymnastics in the hall twice each week for a period of ten minutes.

The large playground and the small city park adjoining the grounds (which is soon to be graded) has made possible a supervised playground organization. The entire school enrollment is divided into teams which are scheduled to play on certain courts on certain days.

Motivated Cooking

A cafeteria operated in connection with the domestic science department prepares lunches for about two hundred persons daily. This gives the girls a practical training in preparing simple and nutritious meals that is not possible when small quantities of different kinds of food are cooked.

Vocational Education

The fact that students of this age have little conscious knowledge of themselves and less experience with the world explains why so many pass through a kaleidoscopic desire to follow a variety of callings. This, together with the fact that fifty per cent leave school before the completion of the eighth grade makes it all the more mandatory that the Junior High School strive to eliminate as many of these fluttering desires as possible by focalizing the students' desires and efforts in certain major directions through book study, local surveys and the various shops of the school. With this in view the English department has conducted a general survey of the industries of the city, studying the possibilities and the fundamental processes underlying many lines of work.

Because of the recent organization of the school a complete vocational program has not been worked out. In another year more shops will be added to our present equipment for the purpose of giving the second year students a six weeks' trial in several lines of work.

This preliminary work is to be followed in the third year by a definite selection of one of the shops for more concentrated work. This plan of definite selection does not mean that the life work is necessarily determined, but rather that an undecided life may work along some purposeful line of work until a definite choice is made. "To fix one's purpose fairly near the right goal at an early age, and provide a course leading in that direction, is to furnish inspiration and ambition and motive power to one's work."

As Dr. Eliot states: For children between the ages of twelve and sixteen it is particularly important to provide various forms of training which they can see will be of use to them in after life.

THE SIX-SIX PLAN

Schools with an enrollment in the high school and 7th and 8th grades too small to justify a distinct organization of the 7th, 8th and 9th grades into a junior high school may often be able to secure many of the advantages of the 6-3-3 plan by combining the 7th and 8th grades with the high school and administering the work of the whole practically as a six year high school. The six grades below would then form the graded school as in the 6-3-3 plan.

The following are possible advantages of this 6-6 grouping over the regular graded system:

1. It avoids the present break between the 8th grade and the high school and is likely to increase the tendency to remain in the school at least through the ninth grade.
2. It facilitates departmental teaching and promotion by subjects rather than by grades.
3. It gives an opportunity for the earlier introduction of certain subjects into the course of study.
4. It brings the student earlier into touch with the atmosphere and spirit of the high school.

Whether or not these advantages can be secured under this system enough better than under the usual graded system to offset some disadvantages of discipline, loss of personal influence of teachers and others will depend often on local conditions. In all cases its success will be measured very largely by the efficiency of administration and the disposition and ability of teachers. It may be that in some even small schools the 7th, 8th and 9th grades can be provided for as fairly distinct organizations and thus still more nearly approach the junior high school in purpose and methods.

It is proper to state here that at present the free high school law of the state recognizes only four-year high schools. Any special high school aid must be based on expenditures for the 9th, 10th, 11th and 12th grades.

The plan of sixty minute periods with supervised study is still in an experimental stage and is not an essential feature of a junior high school. While a part of the time of each of these periods is used for study, the time is so short that there is necessity for a considerable amount of additional preparation in the heavier academic subjects. The plan also conflicts with the requirement of seventy minutes daily for the vocational courses unless additional time is provided for these subjects.

Any tendency in connection with this plan to shorten the usual school day should be avoided. The trend of educational opinion is toward a lengthening rather than a shortening of this work day. Many schools are beginning as early as eight in the morning and some are extending the day to four-thirty.

A plan of a junior-senior high school which has many good points has recently been adopted at Ripon. The two schools are provided for in the same building but under separate organizations. The course of study will not only furnish suggestions for the three-three plan, but will serve to some extent as a guide to smaller schools which are better adapted to the six year high school plan.

Course of Study Junior High School

Seventh Year—Both Semesters

Required	Units	Elective	Units
English	1	German	1
Arithmetic	1	Manual Training	1
Geography	1	Domestic Science	1
History	1	Agriculture	1
Music	.2	Typewriting	1
Physical Education	.2		

Eighth Year—Both Semesters

Required	Units	Elective	Units
English	1	German	1
Arithmetic	1	Manual Training	1
Elementary Science	1	Domestic Science	1
History and Civics	1	Agriculture	1
Music	.2	Typewriting	1
Physical Education	.2		

Ninth Year

First Semester

Second Semester

Required

Subject	Units	Subject
English	1	English
Algebra	1	Algebra
Elementary Biology	½	Botany ½

Elective

General Science	½	Farm Plant Life ½
Domestic Science	1	Domestic Science
Manual Training	1	Manual Training
German	1	German
Latin	1	Latin
Arith. Commercial	½	Bookkeeping
Music	½	Geography
Physical Education	¼	Music
		Physical Education

Notes.

1. Penmanship and spelling classes will be arranged for students deficient in those subjects throughout the three years.
2. Combining the required subjects with one of the elective subjects will give the average student a full year's work.
3. Except where otherwise specified, the unit given is for a full year's work. Studies which are but half year subjects are indicated by appropriate mark.
4. Close analysis will show distinct courses, viz., Academic, Industrial, Agricultural, and Commercial. It is hoped that during the three years a student will "find himself," sufficiently to enable him to pursue the last three years with profit or if obliged to terminate his education at the close of the ninth grade, he will have discovered to a certain extent the line of work for which he is adapted.
5. The requirements for graduation shall be fourteen units.

Senior High School

Tenth Year

First Semester	Units	Second Semester	Units
Required			
English		English	1
Ancient History		Ancient History	1
Plane Geometry		Plane Geometry	1
Elective			
German		German	1
Latin		Latin	1
Bookkeeping	½	Physiology	½
Farm Plant Life		Soils and Crops	1
Manual Training		Manual Training	1
Domestic Science		Domestic Science	1
Music	½	Music	
Physical Education	½	Physical Education	

Eleventh Year

First Semester		Second Semester	
Required			
English		English	1
Elective			
Medieval and Modern History		Medieval and Modern History	1
Chemistry		Chemistry	1
German		German	1
Latin		Latin	1
Animal Husbandry		Animal Husbandry	1
Domestic Science		Domestic Science	1
Manual Training		Manual Training	1
Stenography and Typewriting		Stenography and Typewriting	1
Music		Music	½
Physical Education		Physical Education	¼

Twelfth Year

First Semester		Second Semester	
Required			
Physics		Physics	1
American History and Civics			
English		American History and Civics	1
Elective			
Farm Mechanics		Farm Management	1
Stenography and Typewriting		Stenography and Typewriting	1
Business English	½	Social Problems	½
Music		Music	½
Physical Education		Physical Education	¼

Note.

1. Four units shall constitute a year's work and twelve units shall be required for graduation.

2. As in the Junior High School there are the four distinct courses. When one is commenced in the tenth year it should not be changed except upon direct request of the parent, and approved by the superintendent.

3. The hour period of supervised study and recitation shall be used throughout the Junior and Senior High School so far as is possible, consistent with the nature of the work.

4. A number of the electives listed in the two high schools will not be available in 1917-18 but will be added from time to time as facilities will permit.

5. The plan of school credit for home work will be continued as introduced in 1916-17 and will be open to any one in either school.

GENERAL SUGGESTIONS

The High School Library

1. The instructions and suggestions with regard to the high school library in the High School Manual should be carefully read. This applies especially to the teacher-librarian and English teachers. See also Score Card for High School Libraries, enclosed herewith, or previously sent.

2. Teacher-librarian. It is expected that in every high school some one member of the faculty shall have charge of the library and be held responsible for its proper organization, condition, and administration; also for its use, in so far as this legitimately depends upon the efforts of the librarian. In most high schools, the librarian will of necessity do some teaching, and to designate such a position, the term teacher-librarian is here used. In all cases, a reasonable time allowance for the library work should be made so that the work may be properly done without overloading the teacher-librarian with work. In the smaller high schools, one recitation period or more per day should be devoted to this work. In the larger high schools, a trained librarian should devote all her time to the library and the library instruction to be given to the students.

Beginning with the school year 1919-'20, it is expected that every high school in the state will employ a teacher-librarian who has had the library training represented by the course for teacher-librarians in the University of Wisconsin, or its equivalent. Principals of high schools should plan to meet this requirement by that time, or sooner if feasible.

High schools employing a trained librarian who devotes all her time to the library work, also those high schools which have an arrangement by which a trained librarian from the public library works at least an hour each day in the high school library will be considered to have met this requirement.

3. Library lessons. A course of lessons on the use of books and reading should be given to every freshman class, so that the students may put it into practical use during the high school course and thus get a training valuable for life purposes. The lessons should be given once or twice a week until the course is completed.

For the purposes of such lessons, use should be made of the department publication **Lessons on the Use of the School Library**. To supplement this publication, the following titles are recommended: **Instruction in the Use of Books and Libraries**, by Fay & Eaton, Boston Book Company, \$2.25; **Reference Guides That Should be Known and How to Use Them**, by F. M. Hopkins, Willard Co., Detroit, \$1.50; **Practical Use of Books and Libraries**, by G. O. Ward, Boston Book Co., \$1.25.

Wisconsin Library Bulletin, issued monthly, free to all libraries of the state. Wisconsin Free Library Commission, Madison.

4. Organization and Condition of the Library. See Score Card for High School Libraries. Much can be done of value in organization before the library is catalogued. In fact, cataloging the library should not be undertaken until it can be done correctly. Classification is not so difficult, and it should be done as soon as at all feasible.

5. Use of the High School Library by the Students. The use made of the library is the final test of its value. Students should be trained to use the library on their own initiative and to find material, as a rule, without specific page references. General reading should be largely on the voluntary basis. Required reading should leave room for considerable choice among the various classes of books. The plan of the Wisconsin Young People's Reading Circle is recommended for this purpose.

Use of the high school library by the community. In communities not having the advantages of a public library, the public should be encouraged and helped to make use of the resources of the high school library. Students may well serve as intermediaries between the school and the home for this purpose. Definite hours when the public may draw and return books should be announced. Books and periodicals should, to an extent, be added to the high school library with this use in view.

Making use of the public library. If there is a public library in the community, its resources should by all means be made use of by the high school. However, it is a mistake to depend largely upon the public library for reference material. Every high school should have at least a good library for reference and collateral reading. The public library may be utilized for much of the general reading and for supplementing the high school reference and collateral reading collection.

Records

Careful records should be kept of attendance and scholarship, and school boards should supply material for keeping such records in a durable, safe, and convenient form so that the data for any individual student may be readily found even though called for years after he has left the school. Suitable record books can usually be obtained at reasonable rates from school supply houses.

In place of record books many schools use a card system of records.

Provide a case of at least two drawers with lock and key. These cases can be had to order to fit any size of card. Transfer cards to separate drawer when pupils withdraw or graduate. The back of the card can be used for further data. A special card for final standings is sometimes provided for safety.

The following is a form of card used in one of the prominent high schools of the state. It can be easily modified to meet local conditions as desired. This card is 5 in. by 8 in.

HIGH SCHOOL

Date of Birth.

Name _____

Parent
Entered

Address

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(irradiated

Place of Birth:

High School Reports

1. Copies of previous reports should be on file in the office of the principal and these should be carefully studied as a preparation for the report to be made at the end of the year. Records for some of the items should start at the beginning of the year.

2. High school accounts should be kept separate from grade accounts, so that at the end of the year it may be possible to state the total expense for the maintenance of the high school. A careful division of the salary of the supervising principal and of high-school teachers who do work with the grades, should be made between the high school and the grades, since this is necessary in computing the proper apportionment of state aid.

3. An inventory of the general and special equipment and of the library should be taken at some time near the close of the year, so that the values may be given as called for in the report.

4. It is expected that a fair allowance will be made from the special aid each year for library and equipment, and a failure to do this may legally cause a loss of a whole or a part of the aid. Reports show an especial neglect of the library in some places last year. Such places as made little or no appropriation last year for this purpose, should attend to the matter at the beginning of the school this year. After the equipment and the library are up to the minimum requirements, from fifty to seventy-five dollars will be needed for each year in schools of moderate size. Schools with more than five or six teachers will need a larger amount.

Sanitary Conditions of Buildings

The high school principal should see to it, at the beginning of the year especially, that the janitor service is such that all rooms and out-buildings are kept clean and in good order. The use of a sweeping compound is required by law wherever ordinary sweeping is done. Toilets and outbuildings should have frequent attention. Marks or defacements of any kind should be promptly removed, and if found necessary, the principal should arrange one or two special talks in which pupils are urged in a tactful way to coöperate in keeping toilets in perfect condition. It is expected that *toilet paper* shall be provided in all high schools. *Wash places* and *paper towels* should also be furnished in some convenient place. The cost of paper towels and toilet paper has become so small that any school can easily afford to supply them if they are used with reasonable care. It is the duty of the principal to see that these matters are properly looked after. Slovenly conditions are an indication of looseness in the management of the school. The State Board of Health issues a special bulletin on "Rules Relating to Sanitary Care of Schools." These rules have the force of law. The following should be given special attention:

1. *Rule 20. Air and Floor Space.* p. 2.
2. *Rule 22. Ventilation.* p. 3.

3. *Rule 24. Lighting.* p. 3.
4. *Rule 25. Sweeping and Cleaning.* p. 3.
5. *Rule 27. Toilets.* p. 4.

Each principal should secure a copy of this bulletin by writing to the State Board of Health, Madison. Every schoolhouse should compare favorably in the matter of sanitary conditions, both inside and out, with the best homes in the community.

School Organization

Principals who are responsible for supervision of the grades should be allowed enough time from high school work for visits of sufficient length to enable them to thoroughly inspect the work and give such assistance as grade teachers need. It is the duty of the school board to see to it that such supervision is given. In a school of not more than four or five grade rooms, it is possible for the principal to give this supervision and at the same time conduct classes in the high school four or five periods a day. It is believed that even in the largest schools the principal ought to teach at least one class for the sake of the personal contact and sympathy which comes alone through classroom relations.

Instructors should not, with rare exceptions, be expected to teach more than six periods a day, and class periods should be at least *forty minutes in length in the clear*, possibly excepting very small classes, and certain exercises in spelling, penmanship, etc. In smaller schools where there are few teachers the number of classes may be reduced to the limit stated above, by combining third and fourth year classes and alternating the subjects, provided the combination does not result in over twenty or twenty-five pupils in any class. Only in exceptional cases should any section be allowed to contain more than twenty-five pupils.

Teaching Problems and Professional Reading

It is strongly urged that each principal arrange for a series of teachers' meetings at which not only the business side of the school is considered, but at which a relatively large amount of time is given to the discussion of current educational questions. A bulletin relating to "Teachers' Meetings" was issued by the State Superintendent in 1916. Copies of this may be had on request. In this will be found many helpful suggestions about plans for teachers' meetings.

There has perhaps never been a time when more important problems relating to secondary education were pressing for solution than at the present time. Every superintendent and every teacher should

be studying these current questions and contributing something to their solution. Especially should each teacher be studying them in relation to his or her own classroom problems. There is no opportunity equal to the teachers' meeting for the discussion of these questions and for the stimulus to educational growth which comes from exchange of ideas and discussion of current literature.

Among these pressing secondary school problems may be mentioned especially the following: The junior high school plan, the six-six plan, supervised study, adaptation of subject matter and methods to the needs of pupils and to community life, how to make tests and examinations effective in testing ability, recent movements in vocational education, recent educational legislation and its bearing on local problems, types of learning and their relation to classroom instruction, effective drill work in secondary instruction, the problem method of teaching, the socialized recitation.

An unusual number of valuable books have appeared within the last few years along the line of secondary school problems. An excellent bibliography of such books appeared in classified form in the April, 1917, number of the **School Review** under the title "**Professional Reading of the High School Principal.**" In this list the following books are emphasized as especially valuable by a large weight of authority:

1. **Dewey.** *Democracy and Education*, Macmillan, 1916, pp. 434, \$1.40.
2. **Parker.** *Methods of Teaching in the High School*, Ginn, 1915, pp. 529, \$1.50.
3. **Johnston.** *The Modern High School*, (Rev. Ed.) Scribner, 1916, pp. 847, \$1.75.
4. **Judd.** *Psychology of High School Subjects*, Ginn, 1915, pp. 515, \$1.40.
5. **Monroe.** *Principles of Secondary Education*, Macmillan, 1914, pp. 790, \$1.90.
6. **Davis.** *Social and Moral Guidance*, Ginn, 1914, pp. 303, \$1.25.

A very valuable contribution to problems of secondary education has just appeared in the **Riverside Series of Textbooks on Education**.

7. **Snedden.** *Problems of Secondary Education*, Houghton-Mifflin. It is desirable that these books should be in the high school library. At the same time, every teacher ought to be building up a personal library of good professional literature.

Several valuable school journals are now devoted to secondary education and every high-school teacher ought to keep in touch with what is appearing in at least one of these. The following list is suggested:

School Review. University of Chicago Press, \$1.50. Published monthly except July and August. Managing Editor, R. L. Lyman.

Educational Review. Educational Review Publishing Co., Easton, Pa., and New York, \$3.00. Published monthly except July and August. Editor Nicholas M. Butler.

Educational Administration and Supervision. Warwick and York, Lancaster, Pa., and Baltimore, Md., \$2.00. Published monthly except July and August. Managing Editor, C. H. Johnston.

General Science Quarterly. Published four times a year—in November, January, March and May by W. G. Whitman, Salem, Mass., \$1.25.

School Science and Mathematics. Published monthly except July, August, and September, 2059 East 72nd Place, Chicago, \$2.00. Editor, Charles H. Smith. "Official Organ" of Central Association of Science and Mathematics Teachers. Subscription price included in membership fee.

English Journal. Monthly except July and August, \$2.00. University of Chicago Press, Chicago, Ill.

Every high-school teacher and principal should be familiar with the publications of the National Educational Association and of the U. S. Bureau of Education. The head quarters of the former have just been removed from Ann Arbor, Michigan to 1400 Massachusetts Ave., Washington, D. C., and former President J. W. Crabtree of River Falls Normal has been made secretary. This association publishes a monthly journal—*The Journal of the National Educational Association*—September to June. This journal publishes the papers given before the National Association both at the summer meeting and at the winter meeting of the Department of Superintendence. The contents of the journal appear complete in the annual volume of the proceedings. This volume is issued free to all active members of the association. Schools may become institutional active members and receive the publications regularly by keeping up an annual membership fee of \$2.00. High schools ought to secure these volumes for their libraries and teachers and principals should be familiar with their contents.

The United States Bureau of Education, Washington, D. C., is publishing a number of most valuable educational bulletins each year. A monthly record of current educational publications is furnished on request. High school principals should have their names on the list to receive this monthly record. The bulletins may be obtained free so long as the free supply lasts, but afterward they may be obtained from the Superintendent of Documents, Washington, D. C., at a nominal price of from 5 to 20 cents each.

The following of these bulletins are of special importance to high-school teachers:

- Bulletin No. 41, 1913. *The Reorganization of Secondary Education.*
- " No. 23, 1915. *The Teaching of Community Civics.*
- " No. 10, 1916. *Needed Changes in Secondary Education*, C. W. Elliott and Ernest Nelson.
- " No. 21, 1916. *Vocational Secondary Education.*
- " No. 28, 1916. *The Social Studies in Secondary Education.*
- " No. 2, 1917. *Reorganization of English in Secondary Schools*, James F. Hosic.

No high-school teacher can hope to cultivate a healthy professional spirit by which educational growth is possible without keeping in

touch with these current materials. These are the tools of the effective teacher quite as much as the text and reference books which are the direct basis of classroom instruction. Much of the dead, bookish and formal work so common in the schools exists because many teachers are not keeping alive and growing with reference to these current helps and vital materials. It is hoped and expected that Wisconsin high-school teachers will be in the very front rank in these matters.

Apparatus

Apparatus should be selected for service, not for show. Hence every piece purchased should be substantially made and should be well calculated to aid in the study of some important physical principle. Generally, in purchasing a first equipment it will be best for schools to be guided in the selection by such a list as that presented below. The list includes standard apparatus, that has come into use in the best high school laboratories of the country. It represents a fairly good equipment for a new high school, both for variety and for completeness, but should be added to as the school advances.

GENERAL EQUIPMENT

Set of up-to-date geographical maps.
Set of historical maps.
Large pendant globe, at least 18".
Library reading table.
Railroad map of Wisconsin.
Large government map of United States.
Set of physiological charts.
Topographic maps U. S. Geological Survey.
Magazine rack.
A lantern outfit is very desirable.
Collections of rocks, minerals and other illustrative material should be accumulated as rapidly as possible.

Special Laboratory Equipment

Physics

For work in general physical measurement.
Meter sticks sufficient to supply class.
Graduated glass cylinder, 500 cc.
Graduated glass cylinder, 100 cc.
Graduate English measure.
Set English measures.
Set liter measures.
Balance.

Horn pan balance, 6 in.

Spring balance, 30 lb., 15 kg.

Three spring balances, 8 oz., 250 g.

Set universal iron weights with hooks 10 g. to 1 kg.

Set brass weights in block, 100 grams to 1 centigram.

Set avoirdupois weights, 1 oz. to 2 lbs., with hooks.

Iron support.

Iron tripod.

For work in mechanics of solids.

Set pulleys—1 fixed single, 1 mov. single, 1 each double, 1 triple.

Wheel and axle.

Iron ball 4 in. in diameter, with hook.

Small brass ball with hook to use for experiments with pendulum.

For work in mechanics of fluids.

Universal Hydrometer, that is one that may be used for liquids either lighter or heavier than water.

Boyle's law tube.

Set capillary tubes.

Air pump.

Barometer tube.

Pascal's vases.

For work in sound.

Sonometer or violin.

Several tuning forks of different pitch.

Tall glass cylinder without lip, 50 cm. or more high.

Whirling machine.

Savart wheel for whirling machine, 4 rows holes.

Chladni's plate with clamp.

Cello bow for Chladni's plate.

For work in heat.

Thermometer 3 scale.

Two chemical thermometers, double scale.

Glass bulb, about 100 cc., with long stem for use as air thermometer and for study of liquid and gas expansion, etc.

Double or water bath boiler.

Ball and ring for studying expansion of solids.

Pulse glass.

For work in light.

Lamp.

Concave and convex mirror.

Set lenses.

Glass prism.

Color tops.

4 in. reading glass.

For work in electricity and magnetism.

Glass rod, rubber rod, catskin, and pieces of flannel and silk cloth.
Electroporus.
Insulated conductor.
Leyden jar.
Demonstration voltaic cell.
Several dry cells.
Bar magnets in box.
Horseshoe magnet.
Electro magnet.
Primary and secondary coil.
Induction coil, $\frac{1}{4}$ in. spark, sliding coil.
D'Arsonval galvanometer, cheap form.
Magnetic compass.
Resistance box 1 to 100 ohms (cheap form).

The following are some of the pieces which should be added as soon as circumstances will permit:

Model steam engine.
Electric bell.
Telephone.
Telegraph.
Dynamo and motor.
Static electric machine.

Chemistry

General Apparatus.

1 Babcock tester.
2 Balances, sensitive to 1 c. g.
100 Bottles, reagent 4 oz.
10 Burettes.
10 Candles.
5 Condensers, Leibig.
10 Cells, Galvanic.
1 Gross corks, assorted sizes.
1 Set cork borers.
6 Cylinders, 200 c. c.
1 Drying oven.
10 Lbs. glass tubing, assorted.
1 Hoffman apparatus.
1 Magnet, horseshoe.
5 Mortars, 4".
1 Microscope.
4 Sq. inches platinium foil, medium.
5 Platinum wires, 4" long, No. 26.
5 Pneumatic troughs.
2 Sheets paper, black, glazed.
5 Retorts, glass, 500 c. c.
2 Lbs. rubber stoppers, No. 0-5, one and two hole.

- 5 Thermometers, chemical, 0°-250°.
- 10 Tubes, U, 6".
- 50 Ft. rubber tubing, 1/4" inside.
- 20 Ft. rubber tubing 3/16" inside.
- 1 Water bath, 6 holes.

Individual Apparatus.

- 1 Blow pipe.
- 1 Brush, test tube.
- 1 Burner, Bunsen.
- 2 Clamps, burette.
- 1 Clamp large.
- 1 Crucible, porcelain with cover, No. 00.
- 1 Deflagrating spoon.
- 2 Evaporating dishes, porcelain, 3".
- 1 File, triangular.
- 1 Forceps, iron.
- 1 Gauze, iron wire, 4", asbestos center.
- 1 Holder, test tube.
- 1 Pan, agate, 10".
- 1 Pkg. filter, paper, 4".
- 2 Pinch cocks.
- 1 Ring-stand, 3 rings.
- 1 Sand bath.
- 1 Test tube rack.
- 1 Triangle, clay.

Glassware.

- 2 Beakers, 100 c. c.
- 2 Beakers, 250 c. c.
- 1 Beaker, 500 c. c.
- 4 Bottles, salt mouth, 8 oz.
- 4 Bottles, salt mouth, 4 oz.
- 1 Flask, distilling, 250 c. c.
- 1 Flask, Florence, 250 c. c.
- 1 Flask, Erlenmeyer, 250 c. c.
- 1 Flask, Erlenmeyer, 500 c. c.
- 2 Funnels, 60°, 2½".
- 5 Ft. glass tubing.
- 1 Graduate, 100 c. c.
- 1 Jar, hydrometer, 12"/2".
- 5 Plates, glass 4" sq.
- 1 Plate, cobalt glass, 2" sq.
- 6 Stirring rods, 6" long.
- 1 Test tube, hard glass, 6"/½".
- 24 Test tubes, soft glass, 6"/¾".
- 1 Test tube, soft glass, 8"/1".
- 1 Thistle tube.
- 4 Watch glasses, 3".

Chemicals and other supplies as needed.

Biology*Equipment and Apparatus.*

A room provided with tables and chairs so arranged that pupils may work with material while seated about the table is demanded. In the smaller schools, the general science laboratory may be used, but wherever possible a separate laboratory should be provided for the biology. In any case the physics tables are not adapted to the biology work. In schools which have the agricultural course, the biology and agricultural work may be carried on very conveniently in the same room.

The following apparatus should be provided for the biology work:

- 1 Compound microscope for every 12 pupils.
- 1 Dissecting microscope fitted with a 9 x lens for every 2 pupils.
(If possible there should be one for each pupil, and two lenses, 6 x and 12 x, are very desirable.)
- 1 Set of dissecting instruments for each pupil as follows:

2 Needles.	1 Pair scissors.
1 Forceps.	1 Medicine dropper.
1 Scalpel.	1 Small ruler.

- 50 Glass slides with cover glasses.
- 50 Test tubes $\frac{3}{4}$ x 6 inches.
A few test tubes 1 x 8.
- 25. 250 cc. wide mouth bottles with stoppers.
- 2 Razors for use of teacher.
Several battery jars and aquaria.

The following, many of which can be obtained from the physics outfit, will be very useful: retort stands, burners, clamps, glass tubing, rubber tubing, water baths, funnels, volumeters, evaporating dishes, flat pans or dishes, Petri dishes, steam sterilizer or double boiler, trip balance, pie tins for seed testing, blotting paper sheets, cheese cloth, corks.

A few chemicals should be available as follows: alcohol, formalin, iodine, quick lime for lime water, nitric acid, hydrochloric acid, sulphuric acid, ammonia, caustic soda, ether, starch, eosin or red ink, Fehling's solution, glucose and such others as the teacher may need for preparing permanent slides.

Germinating boxes and seed testing trays can be made.

FORMS FOR ESTABLISHING FREE HIGH SCHOOLS.

DISTRICT FREE HIGH SCHOOLS.

FORM OF RESOLUTION PROPOSING THE ESTABLISHMENT OF
A DISTRICT FREE HIGH SCHOOL.

In order that the question of establishing and organizing a district free high school in (joint district No._____) of the town (or towns) of_____, _____ county, Wisconsin, may be properly submitted to the electors, men and women, of said district for consideration and final determination, the following resolution is proposed for adoption:

Resolved, by the undersigned board of education (or school district board) or (joint) school district No._____, _____ county, that a district free high school shall be established, organized and maintained in said district. The school district clerk is hereby authorized and directed to give due notice that this resolution will be submitted to a vote of the duly qualified electors, men and women, of said school district (joint) No._____, at the regular annual district meeting (or at a special school meeting) to be held in said district on the _____ day of _____, 191_____.

Dated this _____ day of _____, 191____.

Board of Education (or School District Board).

FORM OF NOTICE THAT FOREGOING RESOLUTION WILL BE
SUBMITTED TO VOTE.

Notice is hereby given to the duly qualified electors, men and women, of (joint) school district No. _____ of the town (or towns) of _____, _____ County, Wisconsin, that in accordance with a resolution adopted by the board of education, (or school district board) the following resolution will be submitted to the vote of the electors of said district at the annual meeting (or at a special district meeting) to be held on the _____ day of _____, 191____;

Resolved, that a district free high school shall be established and maintained in said (joint) district No.____, town (or towns) of_____. Dated this____ day of_____. 191____.

District Clerk of District No. —.

FORM OF CERTIFICATE TO BE FORWARDED TO THE STATE
SUPERINTENDENT TO SECURE A CERTIFICATE OF ESTAB-
LISHMENT AND ORGANIZATION OF A DISTRICT FREE
HIGH SCHOOL.

This certifies that the legally qualified voters, men and women, of (joint) school district No..... town (or towns, or village) of..... county of....., assembled at the annual school district meeting (or at a special district meeting) held on the..... day of..... 191...., voted upon and adopted the following resolution submitted by the school district board (or board of education) of said school district No.....

Resolved, That a district free high school be established, organized and maintained in (joint) school district No..... town, (or towns, or village) of....., county, Wisconsin.

It was hereby further certified that said election was held pursuant to law and after due notification and that the electors voted by ballot as follows:

..... Total votes for district free high school.....
..... Against district free high school.....

Signed:

....., Director.
....., Clerk.
....., Treasurer.

FORM OF PETITION FOR ELECTION FOR ESTABLISHMENT,
ORGANIZATION AND MAINTENANCE OF A UNION FREE
HIGH SCHOOL.

To..... Chairman of the Town of.....
County of.....:

We, the undersigned legally qualified school electors of the herein-after described territory and constituting at least one-fifth of the total number of legally qualified school electors residing within said territory, hereby petition that the question of the establishment, organization and maintenance of a union free high school in said territory be submitted to the electors thereof as provided by law.

Description of territory included in the proposed union high school district

Dated this....., day of....., 191.....

Note.—In case the territory includes an incorporated village the petition may be presented to either the village president or to the town chairman. (See law.) This petition must be signed by at least one-fifth of the electors (men and women) of the proposed district.

UNION FREE HIGH SCHOOLS

NOTICE OF ELECTION FOR THE ESTABLISHMENT, ORGANIZATION AND MAINTENANCE OF A UNION FREE HIGH SCHOOL IN TERRITORY NOT INCLUDING AN INCORPORATED VILLAGE.

Notice is hereby given that the question of the establishment, organization and maintenance of a union free high school will be submitted to the electors, men and women, of the following described territory at the.....on the.....day of.....191.....

Description of proposed union free high school district.....
.....
.....
.....

Dated this..... day of....., 191.....

.....
Town Clerk of the Town of.....

NOTICE OF ELECTION FOR THE ESTABLISHMENT, ORGANIZATION AND MAINTENANCE OF A UNION FREE HIGH SCHOOL IN TERRITORY INCLUDING AN INCORPORATED VILLAGE.

Notice is hereby given that the question of the establishment, organization and maintenance of a union free high school will be submitted to the electors of such part of the following described territory as lies outside of the village (or villages) of.....

.....at.....
.....
on the..... day of....., 191.....

Description of proposed union free high school district.....
.....
.....

Notice is further given that at said election there shall be chosen a union free high school board consisting of a director, a clerk, and a treasurer, who shall take their office if said school shall be established, the clerk for one year, the treasurer for two years and the director for three years, the time elapsing until the first annual union high school meeting to be considered as one year.

Dated this..... day of....., 191.....

Signed.....

.....
Town Clerk of the Town of.....

Note.—The village clerk (or clerks) must issue a corresponding notice of an election in each village.

In case a tax levy is to be authorized (according to law); this should also be inserted in the resolution.

FORM OF CERTIFICATE TO BE FORWARDED BY ELECTION
OFFICERS TO TOWN CLERK.

To....., Town Clerk of the Town of....., County of....., Wisconsin.

We, the undersigned officers of the election held at..... on the.....day of....., 191...., for the purpose of voting upon the establishment, organization, and maintenance of a union free high school to be composed of the following described territory: do hereby certify to you as town clerk of the town of..... that the said election was conducted according to the statutes provided therefor.

The whole number of votes cast was..... of which were in favor of the establishment of a union free high school and..... were opposed thereto, the majority being.....

We further certify to you that the following named persons were voted for as officers of said union free high school district board, and that the votes cast for each were as follows:

Director.....	{

Clerk.....	{

Treasurer.....	{

The following were declared duly elected:

Director,

..... Elected for three years.

Clerk,

..... Elected for one year.

Treasurer.

..... Elected for two years.

Signed,

_____,
_____,

Officers of Election.

Note. The above certificate of election must be sent by the election officers to the clerk of each town and village concerned, and if the question be adopted, the result shall also be certified to the state superintendent by the clerk of each municipality interested, within six days after the election.

NONRESIDENT PUPILS.

The following method of procedure is suggested to school boards in the case of nonresident pupils attending Free High Schools, as a means of preventing friction and misunderstanding in applying the law relative to tuition. A printed blank similar to the following, signed by the applicant, county superintendent, and a supervisor of the town in which the pupil resides and presented in duplicate by the applicant shortly after entering school would serve to give notice to all parties interested, and would also be sufficient evidence thereafter, when attached to the bill for tuition, that the pupil has completed the course of study for common schools.

Let the principal issue these blanks to pupils upon entering school. When the candidates have filled them out and signed them, the principal should then forward them in duplicate to the county superintendent. When signed by him, let them be returned to the principal who in turn may send them by the applicant, to be signed by a supervisor of the town, and to be returned by him to the clerk of the school board.

This certifies that age is a resident of the Town of County of State of Wisconsin and that has completed the course of study prescribed for common schools, and is entitled to all privileges granted in Chapter 329, Laws of 1903, amending Chapter 188, Laws of 1901, for the school year beginning

.....
County Superintendent.

.....
Supervisor.

.....
Town of

.....
Applicant sign here.

Dated.....

Syracuse, N. Y.
PAT. JAN. 21, 1902

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